

# SUPPLEMENT NO. 1 TO BENDIX POWER BRAKE SERVICE MANUAL Form No. 9-208

## VACUUM SUSPENDED SINGLE DIAPHRAGM MASTER-VAC (Bolted Shell type) DESCRIPTION & OVERHAUL

### DESCRIPTION

The Vacuum Suspended Single Diaphragm Master-Vac, of the bolted shell design, was first used on the 1963 Chrysler and Plymouth cars. The bolted shell design units operate in the same manner as the Single Diaphragm Vacuum Suspended units described in the Bendix Service Manual 9-208A. However, due to the difference in construction, the Bendix Overhaul procedure is covered below.

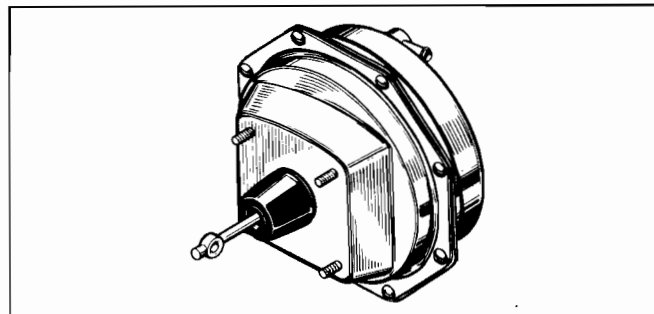


FIGURE 1 - EXTERNAL VIEW

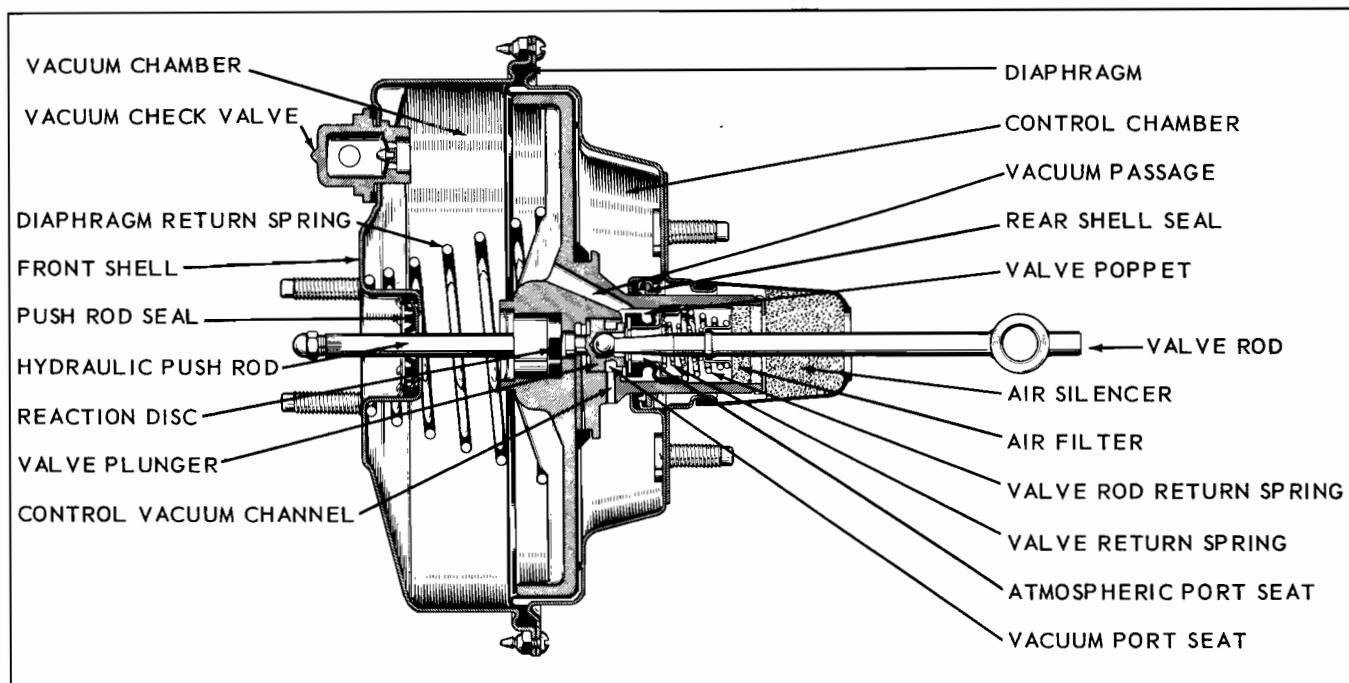


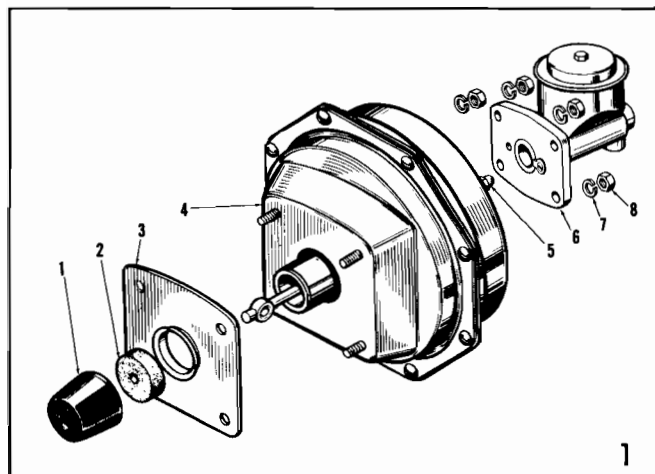
FIGURE 2 - CUTAWAY VIEW OF MASTER-VAC

### BENCH OVERHAUL

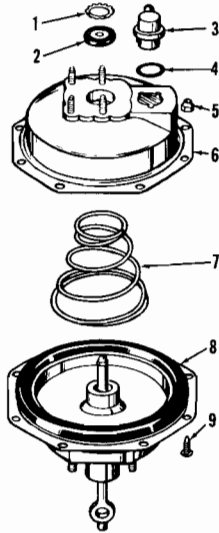
Always use a Bendix Master-Vac Repair Kit when overhauling a Master-Vac. For identification of Master-Vac, refer to code stamp on the valve operating rod. To determine correct Repair Kit and for complete list of service parts, refer to Bendix Power Brake Parts Manual 9-A.

### DISASSEMBLY

1. Scribe across master cylinder flange, front and rear shells. Remove rubber guard (1) air filter (2) and retainer plate (3) from power section (4); then remove master cylinder attaching nuts (8) and lockwashers (7) and lift off master cylinder assembly (6) and set master cylinder aside.



## DISASSEMBLY



2

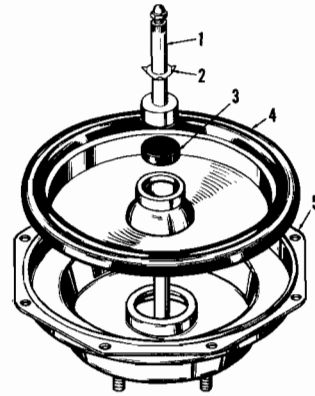
2. Remove seal retainer (1) from front shell by using a thin blade screwdriver or an ice pick to pry one tooth of retainer away from shell at a time. To remove check valve from front shell, press against check valve and turn it counter-clockwise to align lugs on check valve with cut outs in shell. Lift out check valve (3) with "O" ring seal (4). Clamp rear shell studs in vise and remove all but two opposite shell attaching screws (9) and nuts (5). Press down firmly against front shell to off-set return spring load and remove remaining two screws and nuts. Remove front shell (6) and spring (7).

3. Remove push rod retainer (2) by lifting each corner away from the wall of the diaphragm plate hub with a hook tool until retainer is free of the diaphragm plate. Then remove push rod (1) with retainer from the diaphragm plate. Remove diaphragm and valve assembly (4) from rear shell (5).

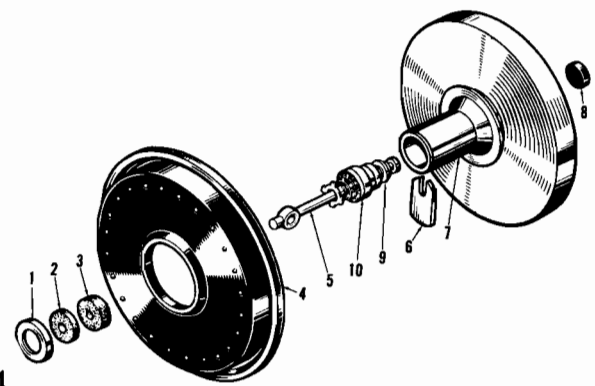
4. Pry silencer retainer (1) from hub end of diaphragm plate (7) being careful not to chip or damage plastic air housing and then remove valve silencer (2) and air filter (3). Remove diaphragm (4) from diaphragm plate (7). Press against end of valve rod and remove valve plunger stop key (6), valve and rod assembly (5) from diaphragm plate. Press out reaction disc (8) from diaphragm plate.

5. Support rear shell (1) on two wooden blocks (2) and drive out seal (3) from rear shell.

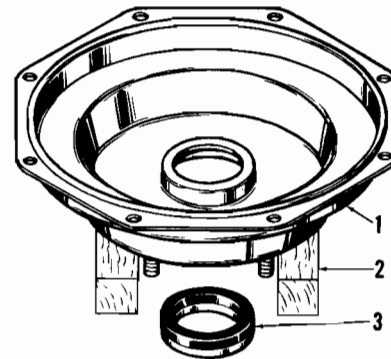
6. Clamp master cylinder in vise. Remove cover (11) with center bolt (12) and gasket (10) from master cylinder. Press in against hydraulic piston (3) and remove screw (1) and piston stop (2). Release pressure and remove piston assembly (3), cup protector (4), primary cup (5), spring and retainer (6), check valve (7) and seat (8) from master cylinder.



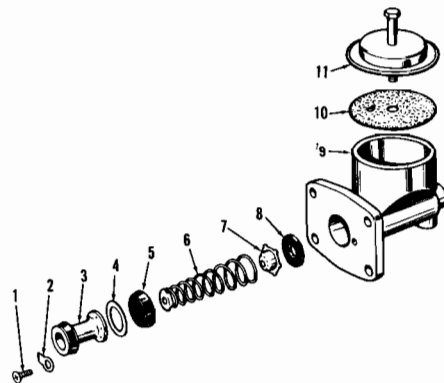
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4



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6

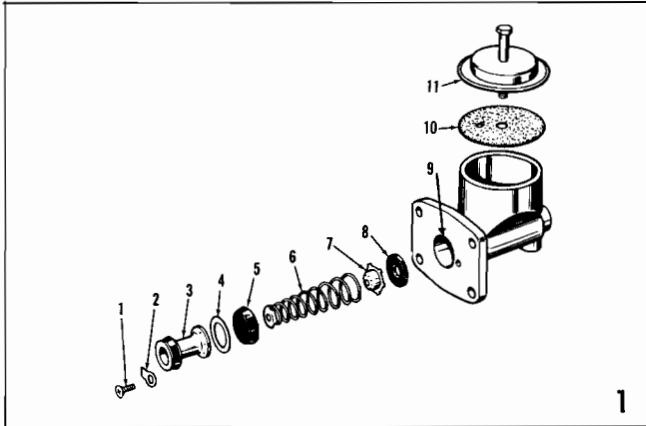
## CLEANING

After disassembly, immersion of all metal parts in Bendix Metalclene or Speedclene is recommended. Plastic parts and rubber parts should be cleaned only in alcohol. Care should be taken to prevent chipping of/or damage to plastic parts. All rubber parts should be replaced. After parts have been thoroughly cleaned, those parts which come in contact with brake fluid should be rewashed in clean alcohol before assembly. Use air hose to blow out dirt and cleaning solvent from recesses and internal passages. When overhauling a Master-Vac, use all parts furnished in the Master-Vac repair kit. **DISCARD ALL OLD RUBBER PARTS.**

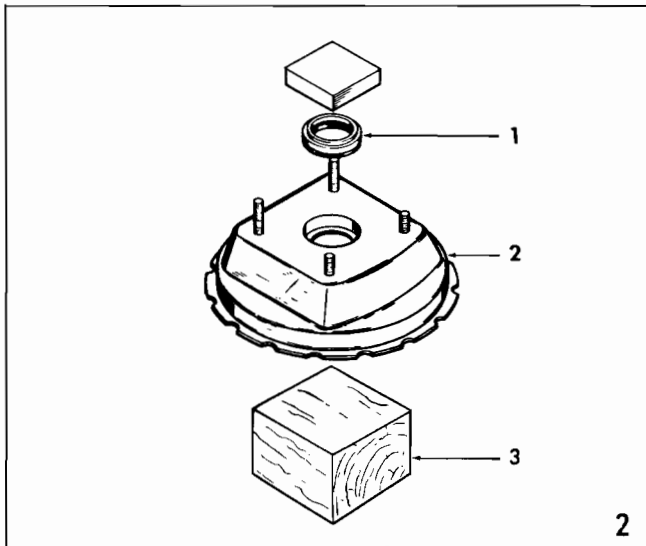
## INSPECTION

Inspect all other parts for damage or excessive wear. Replace any damaged, worn or chipped parts. Inspect master cylinder bore for scoring, rust, pitting or etching. Any of these will require replacement of master cylinder.

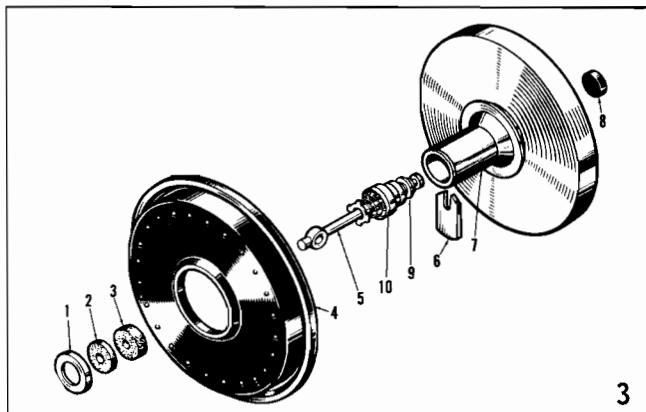
## ASSEMBLY



1. Before assembly of master cylinder, thoroughly wash all internal parts in clean isopropyl alcohol and place in a clean pan or on a clean paper. Coat bore of master cylinder (9) with brake fluid. If secondary cup was removed from piston (3), replace with a new cup. Dip cup in brake fluid and assemble cup over end of piston. Dip master cylinder parts (3) through (8) in brake fluid and assemble in master cylinder bore in order shown. Press in against piston and assemble piston stop (2) and screw (1). Place new gasket (10) on cover (11) and assemble cover and gasket with center bolt (12).



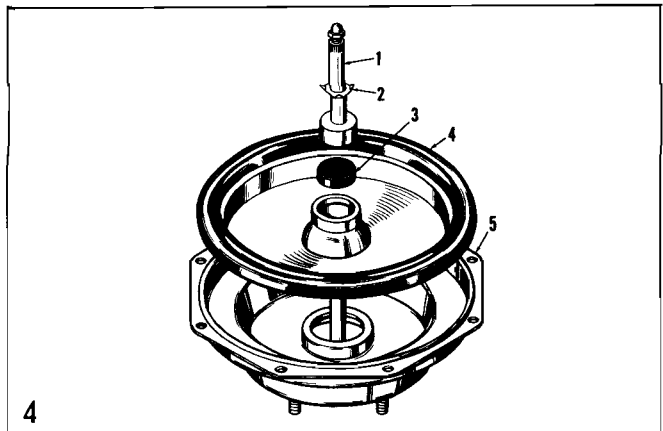
2. Press or drive new seal (1) into rear shell recess with seal assembly tool (73799) until outer flange of tool bears against rear shell surface adjacent to the seal. Plastic side of seal goes next to seal assembly tool. Use block of wood (3) to back up shell when assembling seal to avoid damage to shell.



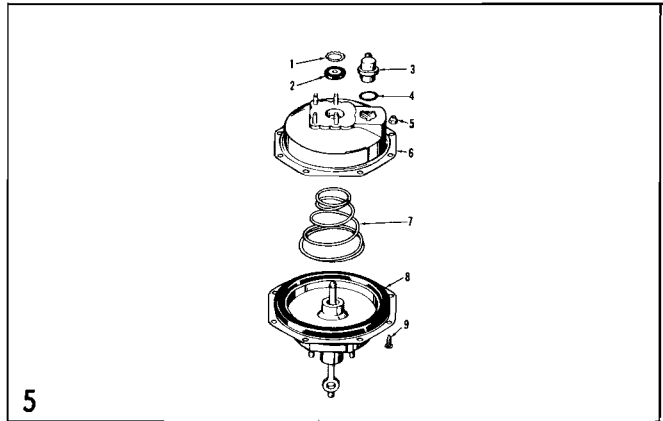
3. Apply Bendix type "O" lubricant to outer diameter of diaphragm plate hub (7) and to bearing surfaces of valve plunger (9) and to outer rim of rubber valve poppet (10). Insert valve and rod assembly (5) in hub of diaphragm plate. Press valve plunger and poppet into position in the diaphragm hub and align slot in diaphragm plate with groove in valve plunger. Insert plunger stop key (6) and assemble diaphragm (4) in groove of diaphragm plate. Assemble air filter (3) and valve silencer (2) over valve rod and guide into place in hub of diaphragm plate. Press silencer retainer (1) on end of diaphragm plate hub. Use care not to chip or damage plastic hub.

## ASSEMBLY

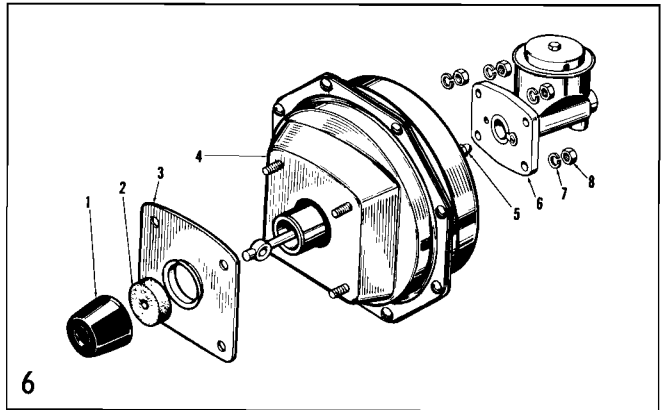
4. Assemble diaphragm and valve assembly (4) in rear shell (5). Apply Bendix type "O" lubricant sparingly to hydraulic push rod (1) keeping lubricant away from adjusting screw end of rod. Apply type "O" lubricant liberally to piston end of push rod and to entire surface of the reaction disc (3) and center disc on push rod. Press disc firmly against push rod and guide reaction disc and push rod into center bore of diaphragm plate. Assemble retainer (2) over push rod (with points up) and press down into hub of diaphragm until seated, using care not to damage surface of push rod. A 5" to 6" length of aluminum or copper tubing is recommended as an assembly tool.



5. Clamp rear shell and diaphragm assembly (8) in vise with hydraulic push rod end up, center large diameter end of return spring (7) on diaphragm plate and position front shell (6) on spring so that shells are aligned to scribe marks. Compress spring sufficiently to attach shells together with two #10-24" x 2" round head screws installed at opposite sides of shells, then assemble eight shell attaching screws (9) with self-locking nuts (5). Tighten screws uniformly. Assemble seal (2) over hydraulic push rod (washer side first), then assemble seal retainer (1) as shown. Press against seal retainer until seal is bottomed in recess of front shell. Place new gasket (4) on check valve (3) and assemble check valve in front shell with check valve outlet horizontal as shown.



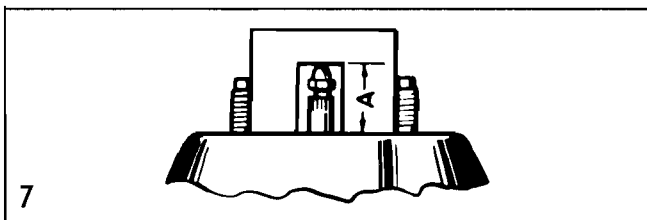
6. NOTE: Before attaching master cylinder to power section, check distance "A" from end of hydraulic push rod (5) to the master cylinder mounting surface at the front end of the power section. The dimension "A", see figure 7, should be .915" to .920". If the push rod length is not correct, follow push rod adjustment procedure below. When push rod length is correct, attach master cylinder to power section with lock-washers (7) and nuts (8). Securely tighten nuts. Assemble retainer plate (3) over studs of rear shell as shown. Assemble air filter (2) in rubber guard (1) and assemble guard with filter over end of valve rod and attach guard to flange of retainer plate.



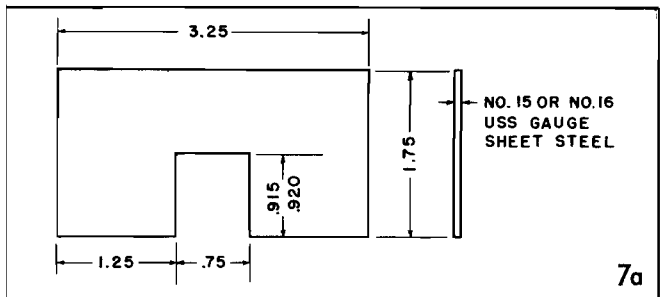
### PUSH ROD ADJUSTMENT

To adjust, hold push rod at serrated section of rod with pliers and turn adjusting screw either "IN" or "OUT" of push rod to obtain specified over all length using either a micrometer gauge or a height gauge. See figure 7a for details from which height gauge may be made.

### ASSEMBLY IS NOW COMPLETED



GAUGING PUSH ROD LENGTH



DETAILS FOR MAKING PUSH ROD GAUGE